



## REQUEST FOR PRE-PROPOSALS

*Please Copy and Distribute to All Interested Parties*

The USDA-NIFA Southern Regional Aquaculture Center solicits a response from qualified multi-state teams interested in participating in the regional project:

### **Winter Fungus: Potential Management Options and Economic Impacts**

SRAC's Board of Directors has authorized up to \$250,000 for a 2-year project on *Winter Fungus: Potential Management Options and Economic Impacts*. This project will be developed using the "comprehensive method" where a team of multi-state scientists having demonstrated records of expertise in the subject complete a single pre-proposal that addresses all project objectives. One proposal will be selected for funding based on review by a committee of scientists not involved in any of the proposals that are submitted.

#### **Background**

Fungi of the Saprolegniaceae family infect many economically important ornamental and food fish species. Massive mortalities of cultured catfish are often associated with external fungal infections that occur during the late fall to early spring. In addition, fungal infections of fish eggs cause millions of dollars in losses annually. Some of the fungi are highly pathogenic and some are opportunistic and hence the treatment strategies need to be optimized accordingly. Only a limited number of chemicals show potential as fungicides, but the safety and environmental impacts of these are questionable. Due to expense and safety concerns of chemical treatments, current management strategies are to optimize water quality and reduce stress, which might not be practical in large-scale operations.

Wide host range and high potential for financial damages make Winter Fungus a real concern to the industry. Also, mass mortalities and very low egg hatchability are reported in ornamental fish farms. Poor water quality, temperature fluctuations, injuries by seining, handling, etc. can lead to fungal outbreaks and fish kills. Selection of proper treatments are an essential decision for the maintenance of healthy stocks of fish and eggs.

#### **Objectives**

1. Identification and differentiation of pathogenic and non-pathogenic Saprolegniaceae spp.
2. Evaluate treatment efficacies (antifungals, nutritional supplements, others) for fish and eggs based on pond organic matter, zoospore load, and hatching rate of the treated eggs.
3. Investigation of the intensity and economic impact of fungal infections on farms.

## Experimental Approach

Contemporary biochemical and molecular methods, including but not limited to DNA fingerprinting, MLSA analysis, genomics, plasmid profiling and antimicrobial susceptibility testing should be employed to characterize the Saprolegniaceae spp. associated with disease outbreaks in ponds and hatcheries. Adequate characterization and environmental monitoring of these species should provide guidelines for the development of effective management measures to reduce the economic losses currently experienced. Treatments should be evaluated in pond environments or tank systems with low temperature controls. Economic impact should be evaluated with the use of producer surveys and diagnostic submissions.

## How to Respond

Pre-proposals must address all objectives. Preference will be given to pre-proposals that show a high degree of collaboration and coordination among participants. To meet the criterion for a regional project, the pre-proposal must include collaboration from scientists in two or more states or territories in the Southern Region (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, Texas, U.S. Virgin Islands, and Virginia).

The pre-proposal must include a one-page vita for each participant and a proposed budget for each participating institution or organization. Pre-proposals, vitae, and budgets that are not in the proper format will not be considered. See “Guidelines for Writing a SRAC Pre-Proposal (Comprehensive)” file attached or contact Kristen Walters with the SRAC office at 662-686-3269.

Send an electronic copy of the pre-proposal in Word format to Jimmy Avery, SRAC Director as an email attachment ([jimmy.avery@msstate.edu](mailto:jimmy.avery@msstate.edu)) by **August 15, 2022**. Proposals received after that date will not be considered.